REMARKS

In response to the Official Action of November 16, 2005, claims 1, 32, and 35 have been amended in a manner which is believed to distinguish the claimed invention over the cited art. Furthermore, claims 12, 13, 26 and 27 have been amended so as to be rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 34 has been amended to correct a grammatical error in the last step. Claims 36 and 37 have been added. As a result of the amendment to claim 13, claims 14-22, 29 and 30, all of which are dependent on claim 13, are believed to be allowable in view of paragraph 7 of the Official Action.

Referring now to the rejection as set forth at paragraph 4 of the Official Action, it is respectfully submitted that claims 1, 2, 6, 7, 9-11, 23-25 and 30-35 are not anticipated in view of US patent 5,420,599, Erkocevic. It is set forth at paragraph 4 with regard to the above-recited claims that Erkocevic shows in Figures 1-3 an antenna apparatus for use in a radio communication system which has a ground plane (44) and wherein a diversity antenna arrangement includes a pair of antenna elements (20,22) each antenna element including a generally L-shaped radiating element. Furthermore, it is set forth that a feed leg portion (36 or 38) and a short circuiting (32 or 34) is shown in Erkocevic.

Claim 1 has been amended so that it specifically states that the pair of antenna elements is arranged so that the feed arrangements of the antenna elements are closer to each other than the second elongated conductive elements of the antenna elements. Support for this amendment is found in the figures of the filed application, including Figure 3, as well as the description in the specification including page 8, lines 1-26 and, in particular, lines 21-22.

As is clearly seen in Erkocevic, including Figure 2, the antenna elements (antennae) (20,22) have feed legs (36,38) at one end of leg portion (14) of each L-

shaped antenna. The other leg portion (12) forming each L-shaped antenna is positioned so that its end is in close proximity to the end of the leg portion (12) of the other antenna. This is described in Erkocevic at column 3, lines 12-14:

> "As seen in FIG. 2, the two antennae 20, 22 are mounted in an orthogonal relationship such that the extremities of the L-shaped portions are located adjacent each other."

The present invention as claimed in amended claim 1 specifically recites that the feed arrangements of the antenna elements are closer to each other than the second elongated conductive elements of the antenna elements. This relationship is not shown or suggested in Erkocevic. In fact, the various embodiments of the present invention differ from the disclosure and teaching of Erkocevic at least in that the antennas of the present invention are intended for diversity combining applications and methods that require two signals to be received simultaneously and therefore typically two full receiver chains are involved. Such methods are, for example, used for maximum ratio combining, equal gain combining and various interference suppression combining methods. Such methods are not limited to switching diversity.

To achieve the results of the present invention, the open ends of the antennas should be as far away from each other as possible while still keeping the antennas relatively close to each other. This is stated in amended claim 1 with the specific recitation "wherein said pair of antenna elements is arranged so that the feed arrangements of said antenna elements are closer to each other than the second elongated conductive elements of the antenna elements." This results in an arrangement where the open ends (for example, the end of the second elongated conductive element of each antenna element) are farther from each other than the feeding arrangements. Accordingly, the various embodiments of the present invention do not necessarily need diversity switching.

Such an arrangement according to the present invention, is in contrast to the disclosure and teaching of Erkocevic which describes a pair of L-shaped antennae (20 and 22) and a switch (30). In particular, Erkocevic describes at column 4, lines 40-51 that the disclosed structure has a switch which is needed because the antennae would otherwise be highly coupled during reception. This coupling is because the open ends of antennae (20,22) are close to each other, as clearly seen in Figure 2 of Erkocevic. The antenna in Erkocevic is used so that only one receiver is connected by the switch during reception to either one of the antennae (20,22) at a particular time. When either antenna (20 or 22) is disconnected, it is tuned to a frequency which is different from that of the other antenna as specifically pointed out at column 4, lines 40-51:

> "Generally, when two antennae such as 20, 22 are placed close to each other, they tend to be highly coupled and this leads to a decrease in the diversity-effectiveness. This problem is overcome in the present invention by the provision of a switch 30 which is arranged to selectively connect the feed pin of one of the antennae 20, 22 to ground and so cause that antenna to behave as a passive resonant circuit tuned to a different frequency from the frequency of operation of the antenna apparatus. Thus, the passive antenna has only a minor influence on the operation of the active antenna."

Therefore, if the switch selects only one antenna (20 or 22) at a time and detunes the other, the antennae never operate on the same frequency, nor do they operate at the same time. In addition, an examination of the geometry of the antennae disclosed in Erkocevic shows that it is not possible to know the relative resonant frequencies of the two antennae unless the entire structure, including the ground plane, is also symmetric. This conclusion is based upon the fact that placement of antennae relative to the ground plane has a strong influence on the resonant frequencies of the

antennae. Thus, antennae (20 and 22) are not symmetrically electrically positioned because the ground plane must be taken into account even though the antennae may appear to be symmetrically positioned. This result is known to a person of ordinary skill in the relevant antenna art based upon theoretical electrical antenna analysis. The antennae that have a larger part of their perimeter adjacent to the edges of the ground plane (for example, antenna (20) in Figure 2) are less loaded by the ground plane than those with smaller parts of their perimeter adjacent to the edges of the ground plane (such as antenna (22) in Figure 2). Therefore, the latter antenna has a lower resonant frequency whereas the antennae should have different lengths to have the same resonant frequency.

Therefore, it is respectfully submitted that the disclosure in Erkocevic neither anticipates nor suggests amended claim 1 of the present application.

Since claim 1 is believed to be distinguished over Erkocevic, it is respectfully submitted that claims 2, 6, 7, 9-11, 23-25 and 30-31 are also not anticipated by Erkocevic since all of these claims ultimately depend from amended claim 1.

Independent claim 32 has been amended in a manner similar to claim 1 and, for similar reasons, is believed to be not anticipated by Erkocevic.

Likewise, independent method claim 35 has been amended with regard to the described pair of antenna elements in a manner similar to claim 1 and is also therefore believed to be not anticipated by Erkocevic.

Claim 33 is an independent claim directed to a diversity antenna system which describes at least a pair of planar inverted F antennas with the specific technique for forming this antenna system. The disclosure in Erkocevic describes and shows in Figures 1A and 1B and antenna (10) formed from a metal blank (see column 4, lines 39-41). The technique described for forming the antenna system as recited in claim 33 is not described in Erkocevic, nor is any specific recitation to this claim presented at

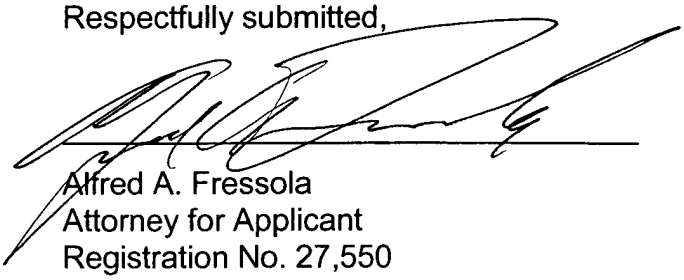
paragraph 4 of the Official Action. It is therefore respectfully submitted that claim 33 is not anticipated by Erkocevic.

Similarly, method claim 34 is directed to a method for manufacturing a diversity antenna arrangement for a mobile station which also describes obtaining at least a pair of planar inverted F antennas and for each antenna, removing metallization from a generally center region and removing one of the formed current paths by removal of a corresponding metallization of the current path. For similar reasons as those presented with respect to claim 33, amended claim 34 is not believed to be anticipated by Erkocevic.

Referring now to paragraphs 5 and 6 of the Official Action. It is respectfully submitted that claims 3-5 and 8 are not obvious under 35 U.S.C. §103(a) in view of Erkocevic since each of these claims ultimately depend from amended claim 1 and are believed to be distinguished over Erkocevic for the reasons set forth above regarding amended claim 1.

In view of the foregoing, it is respectfully submitted that the present application as amended is in condition for allowance and such action is earnestly solicited.

Respectfully submitted,



Dated: February 16, 2006

Alfred A. Fressola
Attorney for Applicant
Registration No. 27,550

WARE, FRESSOLA, VAN DER SLUYS
& ADOLPHSON LLP
Bradford Green, Building Five
755 Main Street, P.O. Box 224
Monroe, CT 06468
Telephone: (203) 261-1234
Facsimile: (203) 261-5676
USPTO Customer No. 004955